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DESCRIPTIONS OF WESTERN COLORADO APHIDIDAE

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The specimens described here were collected during the summer of 1948, in a region known as Unaweep Canyon through which highway 141 has been built.

Macrosiphum bonitum, new species

Apterous viviparous female. Size and general color.—Average length from vertex to tip of anal plate 1.95 mm, range from 1.71-2.18 mm. Width of head across eyes .371-.40 mm. Head thorax and abdomen bright radiant red in forms taken in the summer changing to brownish red for forms taken late in the fall. Antennae dark brown to almost black, except for I and II and the extreme base of III and most of VI. These segments and regions are somewhat lighter in color. Femora with basal halves yellowish to dusky yellow quickly shading to dark brown. Tibiae and tarsi almost uniform dark brown, sometimes with basal and apical portions almost black, and the region between very dark brown. Cornicles black and very uniform in color. Cauda, except for lighter basal portion brown with setulose surface darker.

Head and appendages.—Comparative lengths of antennal segments as follows: III .50-.629, average .571 mm, IV .35-48, average .41 mm, V .314-.316, average .379 mm, VI .114-.143+ .46-.53 mm. Secondary sensoria confined to the third antennal segment and numbering from 10 to 25 with the average number 15. However, seven specimens taken at random out of twelve had fifteen or more sensoria. The sensoria are, as a rule, confined to the basal three fourths of the segment; they vary greatly in size, the smaller ones being tuberculate, the larger ones not. Some of the smaller sensoria are no larger than the base of the antennal hairs which are quite similar to the sensoria, being lighter than the antennal surface in color. The sensoria are without rims. Antennal hair is sparse, that on III slightly knobbed and shorter than the segment is wide. The third antennal segment is smooth, the remaining segments are imbricated, segments five and six being more imbricated than the fourth. Antennal tubercles only moderately well developed and diverging. First antennal segment only slightly gibbous. Rostrum reaching to or almost to the coxae of the metathoracic pair of legs. Segments four and five of the rostrum rather long, about equal to the second segment of the hind tarsus in length, rather narrow but by no means acute. All segments of the rostrum beyond the basal half of the second dark brown.

Thorax.—The thorax is without lateral tubercles. The hair on the legs is pale and arises from clear colored elevations. The hair on the outer surface of the tibiae is longer than that on the inner surface and gets

progressively longer towards the apex. The hair near the base of the tibiae is much shorter than the width of the tibiae at this point. The hair on the outer surface of the tibaie near the apex is longer than the width of the segment while that on the inner surface is less than half the tibiae in width. The tibial hairs are sparse but the hair on the apical region is more abundant. The hind tibiae measure from 1.07-1.35 mm in length. As a rule the tibiae are longer than 1.20 mm but much shorter than 1.35 mm. The hind tarsi measure from .128-.143 mm in length.

Abdomen.—The abdomen is without lateral tubercles. The cornicles measure from .614-.745 mm in length. As a rule, the cornicles range between .64 mm and .71 mm. The cornicles taper slightly from a rather wide base to a weakly developed rim. They are coarsely imbricated so that the basal half appears rather rough. About .1 mm of the cornicle near the apex is reticulated. The reticulations are weak and on some specimens rather difficult to determine. The cauda is from .214-.257 mm long, with the most common length .243 mm. The cauda is slightly constricted or constricted on one side only. Its tip is rather blunt. On its sides one may find from three to four hairs. It is common for the cauda to have three hairs on one side and four on the other. A hair on the dorsum near the apex may or may not be present. The entire surface of the cauda is coarsely setulose.

Alate viviparous female.—Size and general color.—Length from vertex to tip of anal plate 1.21-1.87, average length 1.51 mm. Width of head across eyes .343-.386 mm. Color of head thorax and abdomen quite similar to that of the apterous viviparous female. Color of appendages similar to those of apterous viviparous female.

Head and appendages.—Comparative lengths of antennal segments are as follows: III .50-.58, average .53 mm; IV .314-.40, average .365 mm; V .328-.40, average .349 mm; VI .114-.20, average .15 mm + .543-.614 mm. The secondary sensoria are confined to the third antennal segment. They vary considerably in size and all have wide rims, the smaller ones being slightly tuberculate. The sensoria are irregularly arranged but are few to lacking on the dorsal surface. The hair on segment III are sparse, spine-like, pale in color and sharp pointed. In length they are about equal to half the width of the segment. All antennal hair arise from clear-colored slightly raised tubercles which at times suggest small sensoria. Antennal segment III is smooth, the remaining segments are progressively more and more imbricated. The anterior margin of the head is provided with a median tubercle. The antennal tubercles are moderately well developed. The rostrum attains the middle of the coxae of the metethoracic pair of legs, segments four and five are about equal in length to the second segment of the tarsi, and are narrow but not acute.

Thorax.—Thoracic and abdominal tubercles lacking. Stigma narrow and pale dusky in color. Second branch of media about midway between first branch and margin of wing. Veins pale dusky with a pale border. Median portion of wing pale, outer portion light dusky and rather rough. Hind tibiae varying in length from 1.14-1.28 mm, as a rule more than 1.20 mm long. Hind tarsi .143 mm in length. Hair on hind tibiae very sparse, that near the base very short, in other respects similar to that found in the apterous viviparous female.

Abdomen.—Cornicles varying in length from .57-.686 mm. Other

features of cornicles similar to those of apterous viviparous female. Cauda .185-.228 mm, similar to that of apterous viviparous female.

Apterous oviparous female. Size and general color.—Average length from vertex to tip of anal plate 1.79 mm, range from 1.28-2.04 mm. Width of head across eyes, .347-.371 mm. Color of head thorax and abdomen variable. Specimens taken October first were a rich dark brown with the head and antennal tubercles shading to darker dusky brown. Specimens taken October nineteenth, after several frosts, in part were similar to those taken October first, others had the head dark brown with some indications of green. These specimens had the thorax and abdomen dark brown with a greenish-metallic sheen. The antennae, legs, cornicle, and cauda are similar to corresponding structures in the viviparous females.

Head and appendages.—The anterior margin of the head is slightly convex but there is no median tubercle. Comparative lengths of antennal segments are as follows: III .46-.59, average .53 mm; IV .314-.40, average .33 mm; V .30-.40, average .35 mm (in only one case was V shorter than IV); VI .10-.128 + .457-.543, average .48 mm. Secondary sensoria are limited to third antennal segment and number from three to twelve, each number represented by only one specimen. Average number of sensoria is seven, most common number of sensoria, four to six. The sensoria, as a rule, extend only a short distance beyond the basal half of the segment. They vary considerably in size, are irregularly arranged but confined largely to one side of the antenna. The larger sensoria have wide rims which are lacking in the smaller ones. The rostrum extends to or slightly beyond the metathoracic pair of coxae. It may be much darker than that of the viviparous females.

Thorax.—The hind tibiae vary in length from 1.00-1.94 mm, and average 1.26 mm. This average is made much larger than it should be by the tibiae of a single specimen. 1.10 mm would appear to be about the correct average length. The hind tarsi are from .128-.143 mm in length. The basal half of the hind tibia is very slightly swollen and it is in this region that a moderate number of irregularly sized sensoria are located. The sensoria on the tibiae are less abundant near the median portion of the swollen area than elsewhere.

Abdomen.—The cornicles vary in length from .50-.61 mm. The surface of the cornicle not reticulated is roughly imbricated. Anal plate very shallow, apical surface with a few hair. Cauda .171-.251 mm, each represented by a single specimen. The most common length of the cauda is .214 mm. The setulose surface of the cauda is very dark. The lateral surfaces of the cauda have from four to six hair. The cauda is not constricted.

Apterous male. Size and general color.—Average length from vertex to tip of anal plate is 1.14 mm, the range from .929-1.25 mm, the most common length, 1.22 mm. Width of head across eyes .314 mm. The male of this species is described only from the collection made October nineteenth although males may have been present on October first but overlooked on this date because of their small size. Head, thorax and abdomen are dark green shading to dusky brown. Antennae, cornicles, tibiae, and tarsi are blackish brown, less dark than corresponding structures in the female. Basal half of the femora is greenish.

Head and appendages.—Antennal segments with the following comparative lengths: III .386-.443 mm, IV .314 mm, V .286-.316 mm, VI .10-

.143 mm + .50-.543 mm. Secondary senoria distributed as follows: III 21-42, average 30; IV 10-15; V 8-11. On III the sensoria are irregularly arranged, have wide rims and vary considerably in size. On IV the sensoria are confined more or less to one side of the segment. They are irregularly arranged. On this segment the sensoria are more uniform in size and there is a strong tendency for them to be more abundant on the apical half. On V the sensoria are in an irregular row. The rostrum extends slightly beyond the coxae of the metathoracic pair of legs.

Thorax.—The hind tibiae vary around 1.00 mm long. The hair on the tibiae is very sparse and that on the inner side may be very short. The hair near the apex of the tibiae is no longer than that near the middle, that near the base is very short. The hind tarsi are about .128 mm long.

Abdomen.—The cornicles are from .314-.343 mm long, their surface is roughly imbricated. The apex of the cornicles is so feebly reticulated that in most specimens the imbrications appear to reach the apex of the cornicle. The cauda is from .10-.11 mm long and almost triangular in shape, being but little longer than wide at the base. There are about five lateral hairs on the cauda. The gonapophyses are dark brown and well supplied with hair.

Holotype apertous viviparous female August 14, 1948, Morphotype alate viviparous female August 27, 1948, Morphotype apterous oviparous female October 1, 1948, Allotype apterous male October 19, 1948. All types deposited in United States National Museum. The host upon which this species was taken was *Stephanomeria pauciflora.* On this host it lives on the flower stems. Type locality about twenty-five miles north of Gateway, Colorado, near highway 141.

This species is closely allied to *Macrosiphum atripes* G&P from which it differs in the following respects: the males are apterous, the cornicles are much longer and show fewer and more feeble reticulations, the cauda is shorter, thicker, and much darker, neither do the hair on the abdomen arise from dark spots.

Braggia uncompahgrensis, new species

Apterous viviparous female. Size and general color.—Length from vertex to tip of abdomen (the anal plate rarely reaching as far as the tip of the abdomen) varying from .858-1.43, average length 1.27 mm. Specimens taken during the hot dry period of the summer will average smaller than the average given here, while specimens taken after the fall rains, and perhaps those taken in the spring, will average longer. Width of head across eyes .286-.314 mm. Head thorax and abdomen grey-green with a very slight but very uniform frost-like pulverulence, in part due to long hair and in part due to scant pulverulent matter. Antennae pale yellowish-green except for apical three-fourths of segment which is light dusky. Rostrum yellowish-green except for apical segments which are dusky and the extreme tip which is black. Femora yellowish green. Tibiae similar except for a portion near the apex about equal in length to the tarsi which is dusky. Tarsi dusky. Cornicles concolorous with abdomen or slightly dusky at the apex. A few specimens may have the cornicles dusky throughout. Cauda seldom seen but concolorous with abdomen. Anal plate seldom seen but concolorous with abdomen except for the outer margin which is dusky.

Head and appendages.—Comparative lengths of antennal segments as

follows: III .128-.176, most common length .157 mm; IV .085-.128, most common length .128 mm; V .071-.128, as a rule .085 mm or more; VI .075-.085, most common length .071 mm + .057-.071, as a rule just equal to base of six. Secondary sensoria distributed as follows: III 1-4, most common number 3; IV 0-2, distributed almost equally 0-1-2; V 0. All sensoria very difficult to determine, being but little differentiated from the rest of the segment as regards to color. All antennal segments lightly imbricated. Antennal hair almost absent, if present on III very sparse, fine, and very short. Anterior margin of head well rounded and commonly with two long pointed hair. The rostrum reaches slightly beyond the coxae of the mesothoracic pair of legs, but never reaching the coxae of the metathoracic pair. Apical portion of the rostrum thin but not acute, segment four and five longer than the hind tarsi.

Thorax.—Prothorax with a pair of long tubercles. The hand tibiae are from .429-.529 mm long. As a rule they are longer than .471 mm. The hind tarsi are .086-1.00 mm long. The hair on the tibiae is very sparse and shorter than one half the width of the tibiae on the basal half. The tarsal claws are very well developed with the apex of the claw very sharp and clear in color.

Abdomen.—The cornicles very from .057-.085 mm in length, with the most common length .0715 mm. The cornicles are distinctly constricted just before the apex, which has a well developed rim. The surface of the cornicle is imbricated. The dorsal surface of the thorax and abdomen is reticulated. The thorax and abdomen are provided with long .057-.071 mm sharp to dull pointed hair. These body hair are set on exceptionally well developed tubercles, the height of which was not measured in determining the length of the hair. No body hair are enlarged at the tip, none knobbed, and none have a square apical surface. The cauda is very short and, strange as it may seem, hardly ever extends to the tip of the abdomen. It is about .071 mm long and about twice as wide at the base. The surface of the cauda is setulose and the sides have about three hair. The anal plate is also peculiar, being wider than the cauda at the base and very short. Its apical margin is provided with long fine hair which are not situated on tubercles. In most mounted specimens the abdomen extends well beyond the cauda and anal plate hair similar to that found on the rest of the abdomen forming a sort of posterior margin.

Alate viviparous female. Size and general color.—Average length from vertex to tip of abdomen .924 mm, range in size from .829-1.00 mm. Head pale dusky to rather dark dusky brown. Thoras with similar variations. Abdomen grey green with slight frosty pulverulence which in this case is not due to hair. Antenna uniform pale to pale with apical portion of segments light dusky. Femora pale with apical portions dusky. Tibiae pale with distal portions dusky. Femora pale with apical portions dusky. Tarsi dusky. Cornicles concolorus with abdomen or pale dusky.

Head and appendages.—Comparative lengths of antennal segments as follows: III .214-.228 mm, IV .10-.143 mm, V .08-.128 mm, VI .05-.07 + 0.4-.1 mm. Secondary sensoria arranged as follows: III 5-9, most common number nine arranged in more or less of a row; IV 1-3, V 0-1. The sensoria are comparatively large. All antennal segments are imbricated and segments III, IV, and V lack hair. The median portion of the vertex has a well developed tubercle. The rostrum extends well

beyond the metathoracic pair of coxae.

Thorax.—Femora rather short and wide, considerably flattened laterally. Hind tibiae .57-.68 mm long. Hind tarsi .08 mm long. Hair on hind tibiae very short and scant on inner surface and almost lacking on the outer surface. Stigma light dusky with a scale-like surface. Radial sector narrow and weakly bowed. Second branch of media about midway between first branch and the margin of the wing. All veins are light dusky with a pale border and end in a dusky patch before reaching the wing margin. The outer portion of the wing is rougher than the more median portion. Prothorax with well developed lateral tubercles. The cubitus of the hind wings may or may not be present.

Abdomen.—Cornicles .05-.07 mm long, shaped as in apterous viviparous female. Hair on body unlike that on apterous female, comparatively sparse, fine, and sharp-pointed. Cauda and anal plate as in apterous female.

Apterous oviparous female. Size and general color.—Average length from vertex to tip of abdomen 1.23 mm. Range in length from 1.07-1.38 mm. Width of head across eyes .257 mm. Color of head, thorax and abdomen as in apterous viviparous female, or with the head, thorax and abdomen bronze-green.

Head and appendages.—Comparative length of antennal segments as follows: III .157-.171 mm, IV .114-.128 mm, V .071-.100 mm, VI .057-.071 + .071 mm, or as a rule equal to base of VI. Secondary sensoria on III, 2-4, most common number 2, IV 0-2, V 0. The rostrum which has the last two segments long and thin reaches to the metathoracic pair of coxae.

Thorax.—Prothorax with small lateral tubercles. Hind tibiae .40-.42 mm. long, not swollen, but rather wide throughout all but the extreme apex. Sensoria on tibiae numerous, round, of uniform size, and reaching almost to the apex of segment.

Abdomen.—First abdominal segment with lateral tubercles. Cornicles, cauda, and anal plate as in apterous viviparous female. Abdomen posterior to cornicles slightly constricted.

Alate male. Not observed in life. Length 1.21 mm. Proportional length of antennal segments as follows: III .228 mm, IV .20, V .157 mm, VI .1 + .1 mm. Secondary sensoria distributed as follows: III 24-27, IV 13-18, V 11-14, VI 0-2. The sensoria are irregularly arranged, are round and rather uniform in size. The head has a median tubercle. The head and thorax are dusky brown, the abdomen is light green. The cornicles are light dusky.

This species is very closely allied with *Braggia echidna* G&P from which it differs most conspicuously by the character of the body hair in the apterous viviparous female. In the species here described, the hair are sharp-pointed for the most part but some of the hair are slightly blunt, not blunt, or squarely cut off at the apex and distinctly not capitate as described for *echidna.* The body hairs are also longer than those of *echidna.* The color of the males and eviparous females also differs.

Professor Palmer has kindly sent me several slides from the type series of *Braggia echidna* for study. None of these slides shows capitate hairs as described in the original description but the character of the hair differs much from the character of the hair found in *Braggia uncompahgrensis.*

Holotype slide Apterous viviparous female October 19, 1948.
Morphotype Alate viviparous female August 27, 1948.
Morphotype apterous oviparous female October 19, 1948.
Allotype alate male October 19, 1948.

All types deposited in United States National Museum. Specimens of this species are extremely difficult to collect. In only one case were specimens taken in a colony on the flower stems of the host *Eriogonium corymbosom.* Other collections were made on the flower stems and the under sides of the leaves of the host species, the specimens being taken individually. The sparse distribution of this species makes the collection of it extremely tedious and time consuming.

Aphis agathona, new species

Alate viviparous female. Size and general color.—Length from vertex to tip of anal plate .94 mm. Head and thorax dark dusky brown with the anterior margin of head and lateral portions of thorax more dusky than brown. Abdomen dark brown with lateral dusky patches. Cornicles dusky. Femora shading from light dusky to dark dusky. Hind femora darkest. Tibiae light dusky at the base shading to pale dusky and again shading to dusky at the apex. The apical portion of the tibiae of the metathoracic pair of legs, shaded dusky, is much darker than that of the other legs and very considerably longer. Tarsi concolorus with apical portion of tibiae. First and second antennal segments concolorus with head, remaining segments light but dusky with the apical portions darker.

Head and appendages.—Antennal segments with the following proportional lengths: III .271 mm, IV .171 mm, V .157 mm, VI .085 mm + .114 mm. All antennal segments imbricated and provided with but few fine hair, which are short. Sensoria on III irregularly arranged, varying considerably in size from extra large to minute and all with wide rims, the smaller ones tuberculate. On segment III the sensoria number 15 on one antenna and II on the other. Sensoria on IV in an irregular row and numbering 5. Segment V has 2 sensoria. Anterior margin of head well rounded with a median tubercle.

Thorax.—Prothorax with a pair of lateral tubercles. Stigma pale dusky. Radial sector long and narrow, little bowed. Second branch of media closer to margin of wing than to the first branch. Margin of wing very considerably rougher than median portion. Hind tibiae .715 mm long. Hind tarsi .1 mm long. Hair on outer portion of tibiae exceedingly sparse, hair on remaining outer portion of tibiae fewer and finer in texture than that on inner portion.

Abdomen.—First abdominal segment and also the seventh provided with lateral tubercles. Cornicles .057 mm in length, asymetrical, with the surface almost smooth, distinctly constricted near the apex. The cornicles of this form are not nearly as juglike as those of the apterous viviparous female. Cauda .042 mm long, wider at base than long. The sides of the cauda are almost parallel and the apex is very broadly rounded. The hair on the cauda cannot be seen on the single specimen here described. The anal plate is longer than the cauda. It has a setulose surface and its outer margin is provided with a few long, slightly curved hair.

Apterous viviparous female.—Size and general color.—Average length from vertex to tip of anal plate 1.54 mm. Range in length 1.43-1.78 mm.

The smaller specimens were collected in August, the larger ones in October. Head thorax and abdomen clothed with a white pulverulence which at times becomes rather dense. The pulverulent matter is not uniform in distribution, being either naturally lacking or rubbed off in a rather uniform pattern which takes the form of an irregular longitudinal line with frequent deviations to the sides and lateral areas. The denuded areas are a pinkish-brown. The antennae are considerably lighter in color than those of the alate viviparous female. The legs are similar to those of the alate female but the middle portion of the tibiae is much paler. The cornicles are black or almost so. Cauda, with a crescent-shaped area at the base, pale. Remaining portion dusky with apical margin darkest.

Head and appendages.—Comparative length of antennal segments as follows: III .272 mm, range from .243-.300 mm; IV .155 mm, range .143-.185 mm; V .132 mm, range .114-.143 mm, most common length .128 mm; VI most common length .1 mm, range .08-.128 + .011-.12, most common length .11 mm. Sensoria very difficult to determine being but little differentiated from the rest of the antenna in color, arranged in a straight or irregular row showing considerable range in size but on the whole small. Sensoria on III, 2-7, each number represented by but one case, most common number 3; IV, 1-5, each represented by one case, most common number 2; V, 0-3, commonly none. Rostrum reaching to the coxae of the mesothoracic pair of legs. Last two segments of rostrum semi-acute but not needle-like, and as long as or longer than the terminal process of the sixth antennal segment.

Thorax and Abdomen.—Prothorax with well developed lateral tubercles. Hind tibiae .74-.85 mm long. Hind tarsi .085-.1 mm long. Hair on outer surface of apical portion of tibiae longest. Hair on outer portion of tibiae much sparser than that on inner surface. First and seventh abdominal segments with lateral tubercles. Spiracles surrounded by darker patches. Dorsum of mounted specimens shows several isolated irregular spots which are darker in color than surrounding areas. Thorax and abdomen reticulated. Hair on abdomen about .057 mm long, arising from small elevations. Cornicles .085-1.00 mm in length, very wide at the base with a distinct neck near the apex making them look like small jugs. The cornicles are very poorly imbricated. Cauda never as long as wide at the base ranging in length from .042-.085 mm, with the longer length the more common. Apex of Cauda very dull and broadly rounded, distinctly without nipple-like apex. Surface of cauda setulose, margins with from 2-4 hair.

Oviparus female. Size and general color.—Range in size from 1.43-1.79 mm, most common length 1.5 mm. Width of head across eyes .341 mm. Color suggestive of apterous viviparous female and with similar pulverulence. Mounted specimens appear darker than those of apterous viviparous females.

Head and appendages.—Comparative length of antennal segments as follows: III .243-.314 mm, IV .140-.185 mm, V .143-.157 mm, VI .07-.08 mm + .7-.1 mm. Secondary sensoria distributed as follows: III 1-4, each represented by one case, as a rule 2-3; IV 1-5, each represented by one case, most common number, 2-3; V 0-3, as a rule none. Anterior margin of head arched. Rostrum reaching to or beyond mesothoracic pair of coxae.

Thorax and abdomen.—Prothorax with lateral tubercles. Hind tibiae

almost uniform dark dusky brown, uniformly swollen throughout most of length except extreme base and apex. Swollen portion with numerous round and irregular sensoria, some of which may be slightly tuberculate. The length of the tibiae varies from .686-.715 mm. First and seventh abdominal segments with lateral tubercles. Cornicles .071 mm in length and less constricted near apex than those of apterous viviparous female. Abdomen beyond cornicles little constricted. Anal plate very broad and shallow.

Alate male. Size and general color.—Length from vertex to tip of anal plate 1.02-1.08 mm. Color not observed in life but from mounted specimens appears to be as follows: Head and thorax varying from dark dusky brown to rick dark brown. Abdomen varying from yellowish-brown with lateral dusky spots to brown with similar markings. Antennae dusky. Femora almost uniform dusky, tibiae light dusky with basal and apical portions darker. Cornicles dusky. Gonapophyses dark brown. Cauda and anal plate dusky.

Head and appendages.—Secondary sensoria distributed as follows: III 40-43, IV 17-18, V 7-8. Sensoria arranged irregularly but confined mostly to one side of segment. Comparative lengths of antennal segments as follows: III .343-.347 mm, IV .228-.257 mm, V .157-.214 mm, VI .1-1.12 + .114-.171 mm. The vertex has a median tubercle. The rostrum reaches to or slightly beyond the mesothoracic coxae.

Thorax.—The prothorax has a pair of lateral tubercles. The veins of the wings are dusky. The second branch of the media is closer to the margin of the wing than it is to the first branch, in all but one wing. The radial sector is but little bowed and rather close to the margin of the wing.

Abdomen.—The first and seventh abdominal segments have lateral tubercles. The cornicles, which measure .057 mm in length, are more like those of the alate viviparous female than they are like those of the apterous viviparous female. Cauda .028-.057 mm in length. Gonapophyses very broad and flat at the apex with the corners somewhat drawn out suggestive of a well worn scoop shovel.

Holotype alate viviparous female August 27, 1948. Morphotype apterous viviparous female October 1, 1948. Morophotype apterous oviparous female October 19, 1948. Allotype alate male October 19, 1948. All deposited in the United States National Museum. The host on which this species was taken was *Eriogonium corymbosum,* on which it lives on the undersides of the leaves. Type locality east side of highway 141 a few miles north of Gateway, Colorado. This species keys to *Aphis erigoni* Cowen in Gillette and Palmer's Key to the genus Aphis, part II, Aphididae of Colorado, but not satisfactorily so. But there is no question that this species and the species described by Cowen are closely allied. Professor Palmer has seen specimens of the species here described and agrees that they are close to erigoni but believes they should be regarded as distinct. She has also supplied me with specimens determined as *Aphis erigoni. Aphis agathona* differs from *Aphis erigoni* in the following respects: The shorter unguis or terminal process, the fewer and, in the apterous female, much harder-to-see secondary sensoria which are also smaller, the color under the pulverulent matter, the shorter cornicles, a more rounded cauda, and the broken spots on the dorsum of the abdomen (not seen in living specimens).

Aphis urovaneta, new species

Alate viviparous female.

Size and general color.—Length from vertex to tip of anal plate varying from .858-1.07, average length .943 mm. Head thorax and abdomen black. Antennae almost uniform dusky. Femora dusky. Tibiae dusky at base and apically with region between light yellowish. Tarsi dusky. Cornicles dusky to black, cauda the same.

Head and appendages.—Comparative length of antennal segments as follows: III .185-.243, average length .213 mm; IV .10-.143, average length .113 mm; V .1-.128, average length .110 mm; VI .071-.10, average length, .83 mm + .1-.143, average length .133 mm. Secondary sensoria confined to third antennal segment numbering from 3-7 with 5 by far the most common number followed by 6. It is not unusual for the number of sensoria on the two antennae to differ. The sensoria are large and have wide rims. All antennal segments are coarsely imbricated. The antennal segments are without hair except for the tip of VI. The width of the head varies from .30-.314 mm. The ocular tubercles are well developed. The rostrum reaches to or just beyond the metathoracic pair of coxae. Segments IV and V of the rostrum are long and narrow but not acute. Segments IV and V of the rostrum as a rule are longer than the base of VI and may be as long as the terminal process.

Thorax.—There is a large tooth-like tubercle on each side of the prothorax. The stigma is rather narrow and short. The radial sector is long and but little bowed. The second branch of the media is closer to the margin of the wing than it is to the first branch. All veins are lightly bordered with dusky. The entire surface of the wing is very rough, only the anal vein reaches the margin of the wing. The hind tibiae measure .529-.60 mm in length. The hind tarsi are .1 mm long. The hair on the tibiae is sparse and less than one half the width of the tibiae in length. That near the apical portion of the tibiae is even shorter.

Abdomen.—The first segment of the abdomen has a pair of lateral tubercles and a similar pair of tubercles is located on the seventh segment. A few specimens in which the abdomen appears light green show the spiracles surrounded by small dusky areas; this condition is, perhaps, common. The cornicles vary in length from .071-.085 mm. The surface of the cornicles is weakly imbricated and the rim at the apex is poorly developed. The apex of the cornicles is very slightly wider than the base but the sides are straight. The cauda is almost triangular, its apex is acute. There are from three to four hair on the sides of the cauda. The most common length of the cauda is .042 mm but in one case a length of .085 mm was measured. Hair on the abdomen is sparse and short except for the hair on the cauda which is moderately abundant and considerably longer than that found elsewhere.

Apterous viviparous female.—Size and general color.—Length from vertex to tip of anal plate varying from .943-1.43, each length represented by a single specimen. Average length 1.17 mm. Specimens taken during the hot dry spell when the host plants were in need of water were much shorter than the average given here. Width of head across eyes .28 mm. Head thorax and abdomen distinctly grey due to the presence of powder-like pulverulent matter except where the powder has been rubbed off, as it usually is in a more or less regular pattern,

being lacking at the sides of the abdomen and along a more or less irregular elongated area on the mid dorsum. These powder-free areas expose the black color of the abdomen. Antennal segments I and II black, segments III, IV, and the base of V, pale to light dusky. Apical portion of V and all of VI dusky to light black. Femora almost uniform dark brown. Tibiae with extreme basal portion dusky, apical portion the same, intermediate portion pale yellowish. Tarsi brownish. Cauda and cornicles black.

Head and appendages.—Antennal segments with the following proportional lengths: III .143-.214. Specimens taken in August have segment averaging .171 mm, while III of specimens taken in October average .214 mm. IV .08-.17 mm, V .1-.128 mm, VI .071-.114 mm + .128-.143 mm. There are no secondary sensoria. All antennal segments are imbricated, V and VI more so than the others. The anterior margin of the head is distinctly dome-shaped. The rostrum, shaped as in the alate female, reaches to the metathoracic coxae. The ocular tubercles are well developed.

Thorax.—The thorax has a pair of large tooth-like tubercles. The hind tibiae are from .45-.643 mm long.

Abdomen.—The dorsum of the abdomen is reticulated. There are few hair on the abdomen and these are short. The cornicles are .143 mm long and show almost no variation in length. They are feebly imbricated and the rim at the apex is very poorly developed. Cauda .071 mm long showing almost no variation in length, it is almost as wide at the base as long. The tip of the cauda is pointed, the sides are provided with from 3-4 inwardly curving hairs. The upper surface of the cauda is setulose and rather rough.

Apterous oviparous female.—Described from two measured specimens. Length, 1.35 mm. Width of head across eyes, .343 mm. Color as in apterous viviparous female. Comparative length of antennal segments as follows: III .214-.243 mm, IV .143 mm, V .128-.143 mm, VI .1-.128 mm. There are no secondary sensoria. Rostrum hardly reaching coxae of metathoracic pair of legs. Segments 4 and 5 of rostrum almost as long as cornicles. Prothorax with lateral tubercles. Hind tibiae .527 mm long, rather thick except for a distance at the apex about equal to two times the tarsi. Thickened portion of hind tibiae provided with slightly tuberculate round and uniform sensoria. Hair on hind tibiae minute and very sparse even near the apex of the tibiae where hair as a rule is more abundant.

Abdomen.—First abdominal segment with lateral tubercles. A similar pair is located on the seventh segment. Cornicles .114 mm long. Cauda .071 mm long, no longer than wide at the base and provided with 3 hair at the sides. The abdomen is but little constricted posterior to the cornicles.

Alate Male.—Average length from vertex to tip of anal plate 1.05 mm, range from .92-1.28 mm. Width of head across eyes .343 mm. Color of head, thorax, and abdomen black. Head similar to that of alate female in shape. Comparative lengths of antennal segments as follows: III .214-.314 mm, IV .171-.214 mm, V .157 mm, VI .085-.1 + .128-.171 mm. Secondary sensoria distributed as follows: III 30-46, as a rule more than 37; IV 21-31, as a rule more than 24; V 9-17, as a rule fewer than 12. The sensoria are irregularly arranged on all segments. On III and

to a lesser extent on IV, two or three and even four sensoria are crowded together so that they touch one another. Such groups are followed by areas which are free from sensoria. The sensoria are round, of uniform size, and are very slightly tuberculate. Antennal hair is very sparse and short, being hardly two times the height of the imbrications in length. The thorax and abdomen are provided with lateral tubercles similar to those of the females. Wings as in the alate female. Hind tibiae .643-.686 mm. Hind tarsi .1-.114 mm. Gonapophyses black, short, and very hairy.

This species is, as a rule, very abundant, often encrusting the flower stems and upper portions of its host *Eriogonium sp.* (one of the herbaceous members of the genus). From the forms here described, one would appear justified in saying that the species does not migrate. It may not be keyed in any key known to me. From *Aphis eriogoni* Cowen, it differs in color, cornicles and secondary sensoria, as well as in the anterior margin of the head.

Holotype alate viviparous female August 24, 1948.
Morphotype apterous viviparous female October 1, 1948.
Morphotype oviparous female October 1, 1948.

Allotype alate male October 1, 1948. All deposited in the United States National Museum. Type locality about twenty miles north of Gateway, Colorado, or just south of old stone house on highway 141.

Macrosiphum glabrum, G. & P.

Apterous male. Described from only two specimens. Size and general color.—Length of vertex to tip of anal plate 1.38-1.35 mm. Head dusky brown with traces of dark green. Antennae, with the exception of I and II and the base of III, brownish-black. Femora greenish at the base shading to dark dusky brown. Tibiae, brown shading to black. Tarsi dark dusky. Dorsum of thorax dusky, remaining portion green. Abdomen green with narrow, more or less broken bands which extend laterally. Cornicles and cauda dark dusky.

Head and appendages.—Comparative lengths of antennal segments as follows: III .60-.65 mm, IV .54-.60 mm, V .45-.48 mm, VI .143-.157 mm + .60 mm. The secondary sensoria are distributed as follows: III 48-51, IV 31-39, V 13-16. The sensoria are uniform in size, very slightly tuberculate and irregularly arranged. On 4 and 5, the dorsal side is more or less free from sensoria. The rostrum reaches the metathoracic coxae, the last two segments are obtuse.

Thorax and abdomen.—The hind tibiae are from 1.40-1.43 mm long. The hind tarsi measure from .143-.157 mm in length. The tibial hair, except for those near the apex which are fine and short, are spine-like and about equal to the width of the tibiae in length. The cornicles measure from .228-.243 in length; a little more than one third of their length is reticulated. The portion of the cornicle not reticulated is coarsely imbricated. The cauda varies from .143-.176 mm. The cauda has three hair on a side and its surface is coarsely setulose. The gonapophyses have their apical surface rather flat and square.

Allotype: apterous male taken near Gateway, Colorado, October 19, 1948. Host *Artemisia dracunculoides* L. Deposited in the United States National Museum. The males here described were taken together with

apterous viviparous and apterous oviparous females. As the females differed from the original description for the most part as made by Gillette and Palmer in respect to portion of cornicle reticulated, length of rostrum, and size, specimens were sent to Professor Palmer for checking. Professor Palmer sent me a paratypic slide and wrote that the species shows considerable variation within the limits of which my specimens fall.

Macrosiphum atripes, Gillette & Palmer

Oviparous female. Size and general color.—Average length from vertex to tip of anal plate 2.21 mm. Color in all respects similar to that of apterous viviparous female.

Head and appendages.—Antennal segments with the following proportional lengths: III .715-.772 mm., IV .486-.50 mm., V .347-443 mm., VI .10-.14 mm. + .715-786 mm. Width of head across eyes .429 mm. Antennal segment III with from 18-25 round to oval secondary sensoria The sensoria are slightly tuberculate, and are irregularly arranged but are confined more or less to one side of the segment. The hair on the third antennal segment is almost as long as the width of the segment slightly enlarged at the tip and very upright. The rostrum almost reaches the coxae of the mesothoracic legs.

Thorax and appendages.—The metathoracic tibiae are very uniformly swollen except for the apical fourth ,the swollen portion has numerous sensoria. The hair on the inner portion of the hind tibiae is much shorter than that on the outer portion. The hair in the middle outer portion of the hind tibiae is almost at right angles to the tibiae. The hair at the apex of the tibiae is sparse. The hind tibiae measure 1.57 mm. in length.

Abdomen.—The cornicles vary in length from .622-.815 mm. the last .228 mm is reticulated. The hair on the abdomen arises from small brown spots. The cauda is about .443 mm. long, with from 6-7 exceptionally long lateral hair. In shape the cauda is similar to that of the viviparous females.

Alate male.—Described from two specimens not observed in life. Length from vertex to tip of anal plate 1.85 mm. Color indicated from mounted specimens to be quite similar to that of females.

Head and appendages.—Length of antennal segments as follows: III .805-.81 mm., IV .60 mm., V .429-.50 mm., VI .112-.114 + .643-.715 mm. Secondary sensoria arranged as follows: III 66, IV 22, V 15. The sensoria are irregularly arranged but are confined more or less to one side of the segment. The sensoria have wide rims and are slightly tuberculate. The rostrum reaches just beyond the coxae of the mesothoracic pair of legs.

Thorax.—The second branch of the media has its origin about midway between the first branch and the margin of the wing. The veins are dusky and are lightly bordered. The surface of the wing is rough.

Abdomen.—The cornicles vary in length from .347-.42 mm. the surface not reticulated is slightly imbricated. The cauda is .185 mm. long, much shorter and wider than expected, the sides of the cauda carry five long and rather drooping hair. The gonapophyses are long finger-like and provided with many hair.

Allotype, alate male, Morphotype, apterous oviparous female taken about five miles North of Gateway, Colorado October 12, 1948. Both the allotype and the morphotype deposited in the United States National Museum.

This species was observed from August 16 to October 20, 1948. It was taken during this time on *Kuhnia leptophylla* which represents a new host plant for the species. It feeds on this host on the stems of the new growth and on the flower stems.